University of Gdańsk

Subject card

Subject name and code	Analysis and Design of Computer Systems, PG_00204177						
Field of study	Informatics						
Date of commencement of studies	October 2026		Academic year of realisation of subject		2028/2029		
Education level	Bachelor's studies		Subject group		Obligatory subject group in the field of study Subject group related to practical vocational preparation		
Mode of study	full-time studies		Mode of delivery		at the university		
Year of study	3		Language of instruction		Polish		
Semester of study	5		ECTS credits		3.0		
Learning profile	practical		Assessment form		credit		
Conducting unit							
Name and surname of lecturer (lecturers)	Subject supervisor		dr Adam Kostulak				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	30.0	0.0	0.0	45
	E-learning hours included: 0.0						
Learning activity and number of study hours	Learning activity	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	Number of study hours	45		0.0		30.0	75
Subject objectives	Mastery of knowledge and skills in: - methodological foundations of information systems development, - structural, object-oriented, social and adaptive methodologies of information systems development, - linear, spiral and incremental-iterative system life cycle, - methods and techniques of designing information systems - CASE (Computer Aided Software Engineering) packages.						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[INFPL3_K02] is ready to recognize the importance of knowledge in solving cognitive problems and practical and seeking opinions experts in case of difficulties with independent problem solving	Is ready to use technical documentation, professional literature and expert sources	[SK1] oral statement/conversation/ discussion [SK2] presentation/project/paper/ report
[INFPL3_U03] is able to cooperate with other people within teamwork, including being able to manage his/her time, make commitments, communicate using various techniques in the professional environment, including the use of dedicated tools; is able to present different opinions and alternative technical solutions in the project team, explaining their basis, consequences and impact on the project implementation	Is able to work in a team of IT professionals, manage their time and make commitments and meet deadlines, communicate using various techniques in a professional environment including the use of dedicated	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report
[INFPL3_W03] knows and understands advanced issues in software engineering and IT project management methodologies, including the IT project life cycle, specification techniques, software validation and verification, and design patterns uses this knowledge when planning and implementing IT projects	Defines the basic concepts and categories of contemporary methodologies for developing information systems, lists the types of methodologies and tools of creating information systems, explains the processes of effective design and implementation of IT projects. Solves problems to meet IT needs and objectives user plans the strategy of computerisation of companies and institutions, analyses the area ofapplications in terms of defining the assumptions and concepts of information systems,	[SW4] test/exam - oral or written [SW2] presentation/project/paper/ report

Subject contents

- Analysis processes in the context of software engineering (system life cycle phases, functional analysis, non-functional analysis, client-supplier relationship,
Methodological foundations of information systems development
- Design and types of information systems (types of system life cycles, modular design, SOA architecture, classes of systems
used in business)
- Fundamentals of structural analysis (aims, meaning and assumptions of structural analysis, notations used in the analysis phase)
- Fundamentals of object-oriented analysis (objectives and meaning of object-oriented analysis, object-oriented analysis processes)
- Modelling in object-oriented analysis (notations, techniques and tools used, UML, BPMN, SysML)
- Examples of technological support for structured and object-oriented analysis, support for analysis using CASE systems (Computer
Aided System Engineering)
- Interface design. Design processes for forms and reports.
- Design of dialog boxes and dialogue sequences
- Use of guides and checklists in design processes
- Use case diagrams - identification of PUs, advanced specification of relationships, introduction of stereotypes into the model, management of
complexity of complex use case models using packages

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
project	51.0%	50.0%
test	51.0%	50.0%

Recommended reading

Basic literature	1. Wrycza S., Marcinkowski B., Wyrzykowski K., Język UML 2.0 w modelowaniu systemów informatycznych, Helion, Gliwice 2005 2. Wrycza S., Marcinkowski B., Maślankowski J., UML 2.x. Ćwiczenia zaawansowane, Helion, Gliwice 2012 3. Valacich J., George J., Hoffer J., Essential of System Analysis and Design, Fifth Edition, Prentice Hall, 2012
Supplementary literature	1. Booch G., Rumbaugh J., Jacobson I., The Unified Modeling Language User Guide, Second Edition, Addison-Wesley, Boston 2005 2. Booch G., Maksimchuk R., Engle M., Young B., Conallen J., Houston L., Object-Oriented Analysis and Design with Applications (3rd Edition), Addison Wesley, 2007 Kierunkowe efekty uczenia
eResources addresses	

Example issues/ example questions/ tasks being completed	-
Work placement	Not applicable

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